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**JOINT APPLICATION OF ONCOR
ELECTRIC DELIVERY COMPANY
LLC, AEP TEXAS INC., AND LCRA
TRANSMISSION SERVICES
CORPORATION TO AMEND THEIR
CERTIFICATES OF CONVENIENCE
AND NECESSITY FOR 345-KV
TRANSMISSION LINES IN PECOS,
REEVES, AND WARD COUNTIES,
TEXAS (SAND LAKE TO SOLSTICE
AND BAKERSFIELD TO SOLSTICE)**

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BEFORE THE STATE OFFICE

OF

ADMINISTRATIVE HEARINGS



**DIRECT TESTIMONY OF
DAVID BAUTISTA, ENGINEER
INFRASTRUCTURE AND RELIABILITY DIVISION
PUBLIC UTILITY COMMISSION OF TEXAS**

JANUARY 30, 2019

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ATTACHMENTS

DB-1 Qualifications of David Bautista

DB-2 Letter from Texas Parks and Wildlife Department file-stamped
January 15, 2019

1 **I. STATEMENT OF QUALIFICATIONS**

2 **Q. Please state your name, occupation and business address.**

3 A. My name is David Bautista. I am employed by the Public Utility Commission of
4 Texas (the Commission) as an Engineer in the Infrastructure and Reliability
5 Division. My business address is 1701 North Congress Avenue, Austin,
6 Texas 78711-3326.

7 **Q. Please briefly outline your educational and professional background.**

8 A. I have a Bachelor of Science in Electrical Engineering from Texas A&M University-
9 Kingsville. I completed my degree in December of 1999 and have been employed
10 at the Commission since April 2018. A more detailed summary of my experience
11 is provided in Attachment DB-1.

12 **Q. Are you a registered professional engineer?**

13 A. Yes, I am a registered Professional Engineer in Texas and my member number
14 is 103418.

15 **Q. Have you previously filed testimony as an expert before the Commission?**

16 A. Yes. I previously filed testimony in *Application of Golden Spread Electric*
17 *Cooperative, Inc. to Amend its Certificate of Convenience and Necessity for the*
18 *Conversion of the Colorado River Municipal Water District's Private 69-kV*
19 *Transmission Line to Public Use in Concho County, Texas*, Docket No. 48212
20 (pending).

21 **II. SCOPE OF TESTIMONY**

22 **Q. What is the purpose of your testimony in this proceeding?**

23 A. The purpose of my testimony is to present recommendations concerning the Sand

1 Lake to Solstice portion of the Joint Application, specifically the Oncor Electric
2 Delivery Company LLC (Oncor) and AEP Texas Inc. (AEP) (together, the
3 Applicants) portion of the proposed project. Staff engineer Blake Ianni provides
4 testimony that addresses the LCRA Transmission Services Corporation and AEP
5 portion of the application, which is the Bakersfield to Solstice transmission line.

6 The transmission lines (Bakersfield to Solstice 345-kV and Sand Lake to
7 Solstice 345-kV) share a common endpoint. Oncor and AEP proposed the Sand
8 Lake to Solstice 345-kV transmission line, which will be referred to as the *proposed*
9 *project* in the remainder of my testimony.

10 **Q. What are the statutory requirements that a utility must meet to amend its CCN**
11 **to construct a new transmission line?**

12 A. Section 37.056(a) of the Public Utility Regulatory Act (PURA)¹ states that the
13 Commission may approve an application for a CCN only if the Commission finds
14 that the certificate is necessary for the service, accommodation, convenience, or
15 safety of the public. Further, the Commission shall approve, deny, or modify a
16 request for a transmission line after considering the factors specified in PURA §
17 37.056(c), which are as follows:

- 18 (1) the adequacy of existing service;
- 19 (2) the need for additional service;
- 20 (3) the effect of granting the certificate on the recipient of the certificate
21 and any electric utility serving the proximate area; and
- 22 (4) other factors, such as:

¹ Public Utility Regulatory Act, Tex. Util. Code Ann. §§ 11.001-66.016 (PURA).

- 1 (A) community values;
- 2 (B) recreational and park areas;
- 3 (C) historical and aesthetic values;
- 4 (D) environmental integrity;
- 5 (E) the probable improvement of service or lowering of cost to
- 6 consumers in the area if the certificate is granted; and
- 7 (F) to the extent applicable, the effect of granting the certificate
- 8 on the ability of this state to meet the goal established by
- 9 PURA § 39.904(a).

10 **Q. Do the Commission's rules provide any instruction regarding routing criteria?**

11 A. Yes. 16 Texas Administrative Code (TAC) § 25.101(b)(3)(B) requires that an

12 application for a new transmission line address the criteria in PURA § 37.056(c),

13 and that upon considering those criteria, engineering constraints and costs, the line

14 shall be routed to the extent reasonable to moderate the impact on the affected

15 community and landowners, unless grid reliability and security dictate otherwise.

16 The following factors shall be considered in the selection of the route that best

17 addresses the requirements of PURA and the Commission's rules:

- 18 (i) whether the routes parallel or utilize existing compatible rights-of-
- 19 way, including the use of vacant positions on existing multiple-
- 20 circuit transmission lines;
- 21 (ii) whether the routes parallel or utilize existing compatible rights-of-
- 22 way;
- 23 (iii) whether the routes parallel property lines or other natural or cultural

1 features; and

2 (iv) whether the routes conform with the policy of prudent avoidance.²

3 **Q. What issues identified by the Commission must be addressed in this docket?**

4 A. In the Order of Referral and Preliminary Order issued on November 14, 2018, the
5 Commission identified eight issues that must be addressed:

6 1. Is Oncor and AEP's application to amend their respective CCNs adequate?
7 Does the application contain an adequate number of reasonably
8 differentiated alternative routes to conduct a proper evaluation? In
9 answering this question, consideration must be given to the number of
10 proposed alternatives, the locations of the proposed transmission line, and
11 any associated proposed facilities that influence the location of the line.
12 Consideration may also be given to the facts and circumstances specific to
13 the geographic area under consideration, and to any analysis and reasoned
14 justification presented for a limited number of alternative routes. A limited
15 number of alternative routes is not in itself a sufficient basis for finding an
16 application inadequate when the facts and circumstances or a reasoned
17 justification demonstrates a reasonable basis for presenting a limited
18 number of alternatives. If an adequate number of routes is not presented in
19 the application, the ALJ shall allow Oncor and AEP to amend the
20 application and to provide proper notice to affected landowners; if Oncor
21 and AEP choose not to amend the application, the ALJ may dismiss the
22 case without prejudice.

² 16 Tex. Admin. Code § 25.101(b)(3)(B)(i)-(iv) (TAC).

1 2. Are the proposed facilities necessary for the service, accommodation,
2 convenience, or safety of the public within the meaning of PURA
3 § 37.056(a), taking into account the factors set out in PURA § 37.056(c)? In
4 addition,

5 (a) How does the proposed facility support the reliability and adequacy
6 of the interconnected transmission system?

7 (b) Does the proposed facility facilitate robust wholesale competition?

8 (c) What recommendation, if any, has an independent organization, as
9 defined in PURA § 39.151, made regarding the proposed facility?

10 (d) Is the proposed facility needed to interconnect a new transmission
11 service customer?

12 3. Is the transmission project the better option to meet this need when compared
13 to employing distribution facilities? If Oncor and AEP are not subject to the
14 unbundling requirements of PURA § 39.051, is the project the better option
15 to meet the need when compared to a combination of distributed generation
16 and energy efficiency?

17 4. Which proposed transmission line route is the best alternative upon weighing
18 the factors set forth in PURA § 37.056(c) and 16 TAC § 25.101(b)(3)(B)?

19 5. Are there alternative routes or facility configurations that would have a less
20 negative impact on landowners? What would be the incremental cost of
21 those routes?

22 6. If alternative routes or facility configurations are considered due to
23 individual landowner preference:

1 (a) Have the affected landowners made adequate contributions to offset
2 any additional cost associated with the accommodations?

3 (b) Have the accommodations to landowners diminished the electric
4 efficiency of the line or reliability?

5 7. On or after September 1, 2009, did the Texas Parks and Wildlife
6 Department provide any recommendations or informational comments
7 regarding this application pursuant to Section 12.0011(b) of the Texas
8 Parks and Wildlife Code? If so, please address the following issues:

9 (a) What modifications, if any, should be made to the proposed project
10 as a result of any recommendations or comments?

11 (b) What conditions or limitations, if any, should be included in the final
12 order in this docket as a result of any recommendations or
13 comments?

14 (c) What other disposition, if any, should be made of any
15 recommendations or comments?

16 (d) If any recommendation or comment should not be incorporated in
17 this project or the final order, or should not be acted upon, or is
18 otherwise inappropriate or incorrect in light of the specific facts and
19 circumstances presented by this application or the law applicable to
20 contested cases, please explain why that is the case.

21 8. Are the circumstances for this line such that the seven-year limit discussed
22 in section III of the Order of Referral and Preliminary Order should be
23 changed?

1 **Q. Which issues in this proceeding have you addressed in your testimony?**

2 A. I have addressed all of these eight issues from the Order of Referral and Preliminary
3 Order and the requirements of PURA § 37.056 and 16 TAC § 25.101.

4 **Q. What have you relied upon or considered to reach your conclusions and make**
5 **your recommendation?**

6 A. I have relied upon my review and analysis of the data contained in Oncor and AEP's
7 application and the application's accompanying attachments, including the
8 *Environmental Assessment and Alternative Route Analysis* (EA) prepared by Halff
9 Associates, Inc. (Halff). I have also relied upon my review of the direct testimonies
10 and statements of position filed in this proceeding by or on behalf of Oncor and AEP
11 and the intervenors, responses to requests for information, and the letter from the
12 Texas Parks and Wildlife Department to Ms. Karen Hubbard, filed January 15,
13 2019.³

14

15 **III. CONCLUSIONS AND RECOMMENDATIONS**

16 **Q. Based on your evaluation of Oncor and AEP's application and other relevant**
17 **material, what conclusions have you reached regarding the application and the**
18 **proposed project?**

19 1. I conclude that the application is adequate and that Oncor and AEP's
20 proposed routes are adequate in number and geographic diversity.

21 2. I conclude that the application complies with the notice requirements in 16
22 TAC § 22.52(a).

³ Attachment DB2.

1 3. I conclude that, taking into account the factors set out in PURA § 37.056(c),
2 the proposed project is necessary for the service, accommodation,
3 convenience and safety of the public.

4 4. I conclude that the proposed project is the best option to meet the need when
5 compared with other alternatives.

6 5. I conclude that Route 41 is the best route when weighing, as a whole, the
7 factors set forth in PURA § 37.056(c)(4) and in 16 TAC § 25.101(b)(3)(B).

8 6. I conclude that the Texas Parks and Wildlife Department provided
9 mitigation measures regarding the application, and that the mitigation
10 measures provided in Items 3, 4, 5, and 7 on Pages 12, 13, and 14 of my
11 testimony, as well as mitigation measures mentioned in the environmental
12 concerns on pages 22 through 25 of my testimony, are sufficient to address
13 the Texas Parks and Wildlife Department's mitigation recommendations. I
14 also conclude that Oncor and AEP have the resources and procedures in
15 place in order to accommodate the mitigation recommendations by the Texas
16 Parks and Wildlife Department.

17 **Q. What recommendation do you have regarding Oncor and AEP's application?**

18 A. I recommend that the Commission approve Oncor and AEP's application to amend
19 their CCNs in order to construct a new double-circuit 345-kV transmission line
20 within Pecos, Reeves, and Ward Counties, Texas. I also recommend that the
21 Commission order Oncor and AEP to construct the proposed transmission line on
22 Route 41 (Segments A, B1, C3, C2, D2, F3, G4, G51, I2, J1, J7, L1, and Z). I further
23 recommend that the Commission include in its order approving Oncor and AEP's

1 application the following paragraphs in order to mitigate the impact of the proposed
2 project:

3 1. Oncor and AEP shall conduct surveys to identify pipelines that could be
4 affected by the proposed transmission line, if not already completed, and
5 coordinate with pipeline owners in modeling and analyzing potential hazards
6 because of alternating-current interference affecting pipelines being
7 paralleled.

8 2. In the event Oncor and AEP or their contractors encounter any archeological
9 artifacts or other cultural resources during project construction, work shall
10 cease immediately in the vicinity of the resource, and the discovery shall be
11 reported to the Texas Historical Commission. Oncor and AEP shall take
12 action as directed by the Texas Historical Commission.

13 3. Oncor and AEP shall follow the procedures outlined in the following
14 publications for protecting raptors: *Suggested Practices for Avian*
15 *Protection on Power Lines, The State of the Art in 2006*, Avian Power Line
16 Interaction Committee (APLIC, 2006), the *Avian Protection Plan*
17 *Guidelines*, (APLIC, 2005), and *Reducing Avian Collisions with Power*
18 *Lines: The State of the Art in 2012*, (APLIC, 2012). Oncor and AEP shall
19 take precautions to avoid disturbing occupied nests and will take steps to
20 minimize the impact of construction on migratory birds, particularly during
21 nesting season.

22 4. Oncor and AEP shall exercise extreme care to avoid affecting non-targeted
23 vegetation or animal life when using chemical herbicides to control

1 vegetation within the right-of-way and shall ensure that such herbicide use
2 shall comply with rules and guidelines established in the *Federal Insecticide*
3 *Fungicide and Rodenticide Act* and with the Texas Department of
4 Agriculture regulations.

5 5. Oncor and AEP shall minimize the amount of flora and fauna disturbed
6 during construction of the transmission line, except to the extent necessary
7 to establish appropriate right-of-way clearance for the transmission line. In
8 addition, Oncor and AEP shall revegetate, using native species, and shall
9 consider landowner preferences in doing so. Furthermore, to the maximum
10 extent practicable, Oncor and AEP shall avoid adverse environmental impact
11 to sensitive plant and animal species and their habitats, as identified by the
12 Texas Parks and Wildlife Department and the U.S. Fish and Wildlife
13 Service.

14 6. Oncor and AEP shall implement erosion control measures as appropriate.
15 Also, Oncor and AEP shall return each affected landowner's property to its
16 original contours and grades unless otherwise agreed to by the landowner or
17 the landowner's representative. Oncor and AEP shall not be required to
18 restore original contours and grades where a different contour or grade is
19 necessary to ensure the safety or stability of the project's structures or the
20 safe operation and maintenance of the line.

21 7. Oncor and AEP shall use best management practices to minimize the
22 potential impact to migratory birds and threatened or endangered species.

23 8. Oncor and AEP shall cooperate with directly affected landowners to

1 implement minor deviations in the approved route to minimize the impact of
2 the transmission line. Any minor deviations to the approved route shall only
3 directly affect landowners that received notice of the transmission line in
4 accordance with 16 TAC § 22.52(a)(3), and shall directly affect only those
5 landowners that that have agreed to the minor deviation, excluding public
6 rights-of-way.

7 9. Oncor and AEP shall comply with the reporting requirements of 16 TAC
8 § 25.83.

9 **Q. Does your recommended route differ from the one that Oncor and AEP**
10 **believes best addresses the requirements of PURA and the Commission's rules?**

11 A. Yes. Oncor and AEP believe Route 320 best addresses the requirements of PURA
12 and the Commission's rules.

13 **IV. PROJECT JUSTIFICATION**

14 **A. DESCRIPTION OF THE PROJECT**

15 **Q. Please describe the proposed project.**

16 A. Oncor and AEP proposed a new 345-kV transmission line project for a double-
17 circuit transmission line connecting Oncor's Sand Lake Switch, located
18 approximately 6 miles northeast of the city of Pecos in Ward County, Texas, to the
19 AEP Solstice Switch in Pecos County, Texas. This project shares a common
20 endpoint with the Solstice - Bakersfield 345-kV Transmission line.

21 **Q. Does Oncor and AEP's application contain a number of alternative routes**
22 **sufficient to conduct a proper evaluation?**

23 A. Yes. Oncor and AEP's application proposed 29 routes for the proposed project.

1 **Q. Is the proposed project located within the incorporated boundaries of any**
2 **municipality?**

3 A. No. The routes for the proposed project are not located within city limits or extra-
4 territorial jurisdiction of any municipality.

5 **Q. Does any part of this project lie within the Texas Coastal Management**
6 **Program (TCMP) boundary?**

7 A. No. The proposed project is not located, either in whole or in part, within the TCMP
8 boundary.

9 **B. NEED FOR THE PROJECT**

10 **Q. Could you briefly summarize the need for the project?**

11 A. Yes. The electric utilities serving west Texas continue to experience load growth in
12 their respective service areas due to oil and natural gas production, mid-stream
13 processing, and associated economic expansion in the area referred to as the
14 Delaware Basin. This rapid growth prompted Oncor to perform studies on the
15 existing Culberson Loop transmission lines. As a result, studies showed that
16 multiple North American Electric Reliability Corporation TPL-001-4 contingencies
17 threaten the reliability in the area. Electric Reliability Council of Texas (ERCOT)
18 saw similar concerns and confirmed the need for 345-kV facilities in the project
19 study area.⁴ These new 345-kV facilities would enable Transmission System
20 Operators to provide a bi-directional loop service capability, which is needed to
21 address the reliability issues and provide operational flexibility for existing and

⁴ Application at 14.

1 future customers.⁵

2 **Q. Has an independent organization, as defined in PURA § 39.151, determined**
3 **that there is a need for the proposed project?**

4 A. Yes. ERCOT, an independent organization as defined in PURA § 39.151, reviewed
5 the project as part of the Far West Texas Project 2 system. In addition, the proposed
6 project has also received the approval by both the ERCOT Technical Advisory
7 Committee and the ERCOT Board of Directors. It was classified as a Tier 1 project,
8 and designated critical to system reliability.⁶

9 **Q. Are the proposed facilities necessary for the service, accommodation,**
10 **convenience, or safety of the public within the meaning of PURA § 37.056(a)?**

11 A. Yes. Based on the information provided by Oncor and AEP in their application,
12 direct testimonies, and responses to requests for information, it is evident that there
13 is a proven need for the proposed project.

14 **C. PROJECT ALTERNATIVES**

15 **Q. Did Oncor and AEP consider distribution alternatives to the proposed project?**

16 A. No. Distribution alternatives are not practical since they would not improve the
17 reliability and operational capability of the transmission system in the area.⁷

18 **Q. Did Oncor and AEP investigate other alternatives to the proposed project?**

19 A. Yes. At the request of the applicants, the project was endorsed by ERCOT as a
20 critical designation type project to address the accelerated load growth and the

⁵ Application at 15.

⁶ Application Attachment 4 (ERCOT RPG Letter to AEP and Oncor Accepting the Project).

⁷ Application at 15-17.

1 transmission contingency problems in the area.⁸ However, ERCOT analyzed
2 several alternatives to this project to determine whether they would alleviate the
3 contingency issues of the entire area.⁹

4 **Q. Could you briefly summarize those options?**

5 A. Yes. In ERCOT's independent review of the Far West Texas Project 2, ERCOT
6 revisited the alternatives and approved project elements from the original Far West
7 Texas Project based on new load additions in the area.¹⁰ One of the alternatives was
8 to upgrade voltage to existing lines. However, this would not be practical since a
9 new independent 345-kV source and pathway in the area is needed.¹¹ In addition,
10 existing customer facilities were constructed and operated at 138-kV. Upgrading
11 lines from 138-kV to 345-kV would require customers to upgrade as well.¹²
12 Another alternative is bundling of conductors on exiting 138-kV lines. However,
13 bundling at 138-kV would not address the reliability and operational issues under
14 the contingency. In addition, bundling does not provide the bi-directional loop
15 service capability needed for existing and future customers.¹³

16 **Q. Do you agree that the proposed project is the best option when compared to**
17 **other alternatives?**

18 A. Yes.

⁸ Application at 11-12.

⁹ Application at 12-17.

¹⁰ Application at 14-15.

¹¹ Application at 17.

¹² *Id.*

¹³ *Id.*

1

2 **V. ROUTING**3 **A. STAFF RECOMMENDATION**

4 **Q. What route do you recommend upon considering all factors, including the**
5 **factors in PURA § 37.056(c) and 16 TAC § 25.101(b)(3)(B)?**

6 A. Based on my analysis of all the factors that the Commission must consider under
7 PURA § 37.056 and 16 TAC § 25.101, I recommend that Route 41 be approved for
8 the proposed project. The basis for my recommendation is discussed in more detail
9 in the remainder of my testimony.

10 **Q. Which route did Oncor and AEP select as the route which they believe best**
11 **addresses the requirements of PURA and the Commission's rules?**

12 A. Oncor and AEP selected Route 320 as the route which they believe best addresses
13 the requirements of PURA and the Commission's rules.

14 **B. COMMUNITY VALUES**

15 **Q. Have Oncor and AEP sought input from the local community regarding**
16 **community values?**

17 A. Yes. Oncor and AEP held an open house meeting pursuant to 16 TAC § 22.52(a)(4).
18 Oncor and AEP published notice of the open house meeting in the *Fort Stockton*
19 *Pioneer* on August 9, 2018, in the *Monahans News* on August 9, 2018, and in the
20 *Pecos Enterprise* on August 9, 2018. Invitations were mailed to all landowners who
21 owned property within 500 feet of each of the centerline of the proposed segments
22 and/or owners of property crossed by lines. The applicants also provided notice of
23 the public meeting to the Department of Defense Siting Clearinghouse. The open

1 house meeting was conducted on August 15, 2018 at the Reeves County Civic
2 Center in Pecos, Texas from 4:00 to 7:00 PM. The purpose of the public
3 participation meeting was to solicit comments and input from residents, landowners,
4 public officials, and other interested parties concerning the proposed project,
5 preliminary alternative routes, and the overall transmission line routing process.
6 The meeting also promoted a better understanding of the proposed project including
7 the need, purpose, potential benefits, potential impacts, and the CCN certification
8 process. In addition, the meeting informed the public regarding the routing process,
9 schedule, and decision-making process. Finally, the meeting identified the values
10 and concerns of the public and community leaders.¹⁴ A total of nine individuals
11 signed in as attendees of the meeting, including one local official and one member
12 of the local media. Of those, one submitted a questionnaire and the local official
13 submitted electronic data after the meeting. No questionnaires or letters were
14 received via mail at a later date by Oncor, AEP, or Halff.¹⁵

15 **Q. Did members of the community who attended the open house meetings express**
16 **concerns about the proposed project?**

17 A. Yes, as stated previously, nine people attended the meeting and one submitted a
18 questionnaire. A local official submitted an electronic data comment. No
19 questionnaires were received by mail at a later date. Halff reviewed and evaluated
20 the responses and factored the information into the overall evaluation of the

¹⁴ Application Attachment 1.

¹⁵ Application at 19-20.

1 alternative routes.¹⁶

2 **Q. In your opinion, would construction of the proposed project on Route 41**
3 **mitigate the concerns expressed by members of the community at the open**
4 **houses?**

5 A. In my opinion, Route 41 would mitigate some of those concerns. The route parallels
6 or uses existing rights-of-way for 26.4% of its length. The range of alternative
7 routes paralleling existing compatible corridors is 17.3% to 48.7%. In addition,
8 Route 41 does not use segment C1. Some landowners expressed concerns with this
9 segment. I will specifically address recreational and park areas, historical values,
10 aesthetic values, environmental integrity, engineering constraints, costs, moderation
11 of impact on the affected community and landowners, right-of-way, and prudent
12 avoidance in more detail later in my testimony.

13 **Q. Are property values and the impact on future/potential development factors**
14 **considered by the Commission in a CCN proceeding under PURA**
15 **§ 37.056(c)(4) or in 16 TAC § 25.101(b)(3)(B)?**

16 A. No. PURA and the Commission's rules do not list these two issues as factors that
17 are to be considered by the Commission in a CCN proceeding.

18 **Q. Is there any route that received specific opposition from intervenors?**

19 A. Yes. In testimony, intervenors opposed any route containing line segments B1, C1,
20 C2, C3, D1, E1, E2, F1, F2, F3, G1, G2, G3, G4, G51, G52, H1, H2, I2, J1, J3, and
21 J21.

22 **Q. Did you take any other specific community values concerns into consideration?**

¹⁶ Application Attachment 1.

1 A. Yes. All the specific concerns of the intervenors in the case were taken into
2 consideration to the extent that they involved community values.

3 **C. RECREATIONAL AND PARK AREAS**

4 **Q. Are any parks or recreational areas located within 1,000 feet of the centerline**
5 **of any of the alternative routes?**

6 A. There are no parks or recreational areas located within 1,000 feet of the centerline
7 of the proposed alternative routes as listed in the route data provided by Halff
8 Engineers.¹⁷

9 **D. HISTORICAL VALUES**

10 **Q. Are there possible impacts from the proposed project on archeological and**
11 **historical values, including known cultural resources crossed by any of the**
12 **alternative routes or that are located within 1,000 feet of the centerline of any**
13 **of the alternative routes?**

14 A. Route 41 has no recorded archaeological sites and no cemeteries within 1,000 feet
15 of all the route centerlines. If any further archeological or cultural resources are
16 found during construction of the proposed transmission line, Oncor and AEP should
17 immediately cease work in the vicinity of the archeological or cultural resources,
18 and should immediately notify the Texas Historical Commission.

19 **E. AESTHETIC VALUES**

20 **Q. In your opinion, which of the proposed alternative routes would result in a**
21 **negative impact on aesthetic values, and which portions of the study area will**
22 **be affected?**

¹⁷ Application Attachment 1 at pp. 3-71 and 7-16 (Environmental Assessment).

1 A. In my opinion, all of the proposed alternative routes would result in a negative
2 impact on aesthetic values, some routes more than others, depending on the visibility
3 from homes and public roadways. Temporary effects would include views of the
4 actual transmission line construction (*e.g.* assembly and erection of the structures)
5 and of any clearing of rights-of-way. Permanent effects would involve the visibility
6 of the structures and the lines. I therefore conclude that aesthetic values would be
7 impacted throughout the study area, and that these temporary and permanent
8 negative aesthetic effects will occur on any route approved by the Commission.

9 **F. ENVIRONMENTAL INTEGRITY**

10 **Q. Please provide a general description of the area traversed by the proposed**
11 **routes.**

12 A. The area traversed by the transmission line lies in the Southern High Plains sub
13 region of the High Plains physiographic region that eventually grades into the
14 Edwards Plateau region of Texas in Pecos, Reeves, and Ward Counties.¹⁸ The
15 topography of the study area is gently sloping towards the Pecos River floodplain,
16 which is wide and flat.¹⁹ Land use in the study area ranges from agriculture and
17 ranching to oil related activities.

18 **Q. What was involved in your analysis of the environmental impact of the**
19 **proposed project?**

20 A. I reviewed the information provided in the EA, and the direct testimonies and/or
21 statements of position of the intervenors, and the letter from the Texas Parks and

¹⁸ Application attachment 1 at pg. 3-1.

¹⁹ Application attachment 1 at pg. 3-2.

1 Wildlife Department to Ms. Karen Hubbard, filed January 15, 2019.

2 **Q. Based on your review of the information identified above, in your opinion will**
3 **the proposed project present a significant negative impact to environmental**
4 **integrity?**

5 A. No. I agree with Halff that the construction of this transmission line project is not
6 anticipated to have significant adverse impacts on soils when appropriate mitigation
7 measures are implemented.²⁰ A substantial portion of the proposed project would
8 be constructed on land utilized primarily as rangeland pasture. Consistent with
9 project-specific recommendations from TPWD regarding the prevention of habitat
10 fragmentation, construction within the ROW should be performed in such a manner
11 as to minimize adverse impacts to vegetation and to retain existing ground cover
12 where possible.²¹ Erosion and stream sedimentation would be controlled as required
13 by procedures set forth in the stormwater pollution prevention plan, if required.
14 Impacts on vegetation can be minimized by maximizing the parallelization and
15 utilization of existing rights-of-way and using existing facilities. The construction
16 of this project is likewise not expected to have significant impacts on wildlife in the
17 area because of these guidelines and because of the use of other mitigation
18 measures.²² However, construction of some of the alternative routes could, at some
19 locations, present a potential negative impact on the environment. In its letter filed
20 January 15, 2019, the Texas Parks and Wildlife Department stated that Route 324 is

²⁰ Application attachment 1 at pp. 7-1 – 7-2.

²¹ Application attachment 1 at pp. 7-5 – 7-6.

²² Application attachment 1 at pp. 7-8 – 7-10.

1 its recommended route. Texas Parks and Wildlife Department did not express
2 specific concerns with Route 41, and Staff recommends the use of Route 41 because
3 it is the shortest route that offers minimal impact to the region.

4 **Q. In your opinion, how would construction of the proposed project on Route 41**
5 **compare from an environmental perspective to construction on the other**
6 **alternative routes?**

7 A. The proposed project is expected to cause only short-term effects to water, soil, and
8 ecological resources during the initial construction phase. According to the criteria
9 posted by Halff in the EA, Route 41 is average among the route alternatives and the
10 range of ecological impacts among the routes is relatively small.

11 **Q. Do you conclude that Route 41 is acceptable from an environmental and land**
12 **use perspective?**

13 A. Yes.

14 **G. ENGINEERING CONSTRAINTS**

15 **Q. Are there any possible engineering constraints associated with this project?**

16 A. There are no specific engineering constraints that are not present in any transmission
17 line project. In my opinion, all of the possible constraints can be adequately
18 addressed by using design and construction practices/techniques that are usual and
19 customary in the electric utility industry.

20 **H. COSTS**

21 **Q. What are Oncor and AEP's estimated costs of constructing the proposed**
22 **project on each of the proposed alternative routes?**

23 A. Attachment 3 to the application specifies Oncor and AEP's estimated cost of

constructing each recommended route plus the substation preparation work to accommodate the line connection. The table below shows Oncor and AEP's estimated cost of the proposed project from the least expensive route to the most expensive route:

<u>Route</u>	<u>Estimated Cost</u>
320	\$125,931,000.00
41	\$127,529,000.00
297	\$128,521,000.00
18	\$130,119,000.00
324	\$132,983,000.00
292	\$133,928,000.00
282	\$134,977,000.00
13	\$135,526,000.00
3	\$136,575,000.00
280	\$138,111,000.00
328	\$138,788,000.00
357	\$139,491,000.00
293	\$139,765,000.00
49	\$140,386,000.00
281	\$140,492,000.00
131	\$140,692,000.00
296	\$140,981,000.00
78	\$141,068,000.00
14	\$141,363,000.00
90	\$141,410,000.00
326	\$141,762,000.00
310	\$143,777,000.00
325	\$144,093,000.00
366	\$144,744,000.00
329	\$144,867,000.00
46	\$145,691,000.00
404	\$150,071,000.00
370	\$151,168,000.00
183	\$154,614,000.00

As the table illustrates, Route 41 is the second least costly route of all the proposed alternative routes.

Q. Could you briefly discuss the less expensive route and why Route 41 is still

1 **Staff's recommendation?**

2 A. Yes. Route 320 is the shortest and least expensive route. However, it also has 38
3 habitable structures within 500 feet of the centerline.²³ Route 41 is the third shortest
4 and second least expensive of all the proposed routes. This route only has three
5 habitable structures within 500 feet of the centerline, which ranks second as the
6 fewest.²⁴ Route 324 is recommended by Texas Parks and Wildlife Department and
7 is the sixth shortest and sixth least expensive route. However, Route 324 has two
8 electronic installations (towers) within 2000 feet of the route.²⁵

9 **Q. Do Oncor and AEP's estimated costs of constructing the proposed transmission**
10 **line appear to be reasonable?**

11 A. After reviewing Oncor and AEP's estimates, I believe they are reasonable.
12 However, the reasonableness of the final installed cost of the completed project will
13 be determined at a future date in the course of Oncor and AEP transmission cost-of-
14 service proceedings.

15 **I. MODERATION OF IMPACT ON THE AFFECTED COMMUNITY AND**
16 **LANDOWNERS**

17 **Q. Do the Commission's rules address routing alternatives intended to moderate**
18 **the impact on landowners?**

19 A. Yes. 16 TAC § 25.101(b)(3)(B) provides that "the line shall be routed to the extent
20 reasonable to moderate the impact on the affected community and landowners

²³ Application Attachment 1 Appendix E.

²⁴ *Id.*

²⁵ Application at 2.

1 unless grid reliability and security dictate otherwise.”

2 **Q. Subsequent to filing their application, have Oncor and AEP made or proposed**
3 **any routing adjustments to accommodate landowners?**

4 A. Not to my knowledge.

5 **Q. Have Oncor and AEP proposed any specific means by which they will moderate**
6 **the impact of the proposed project on landowners or the affected community**
7 **other than adherence to the Commission’s orders, the use of good utility**
8 **practices, acquisition of and adherence to the terms of all required permits, and**
9 **what you have discussed above?**

10 A. Not to my knowledge.

11 **J. RIGHTS-OF-WAY**

12 **Q. Do the Commission’s rules address routing along existing corridors?**

13 A. Yes. 16 TAC § 25.101(b)(3)(B) provides that the following factors are to be
14 considered:

15 (i) whether the routes parallel or utilize existing compatible rights-of-way,
16 including the use of vacant positions on existing multiple-circuit
17 transmission lines;

18 (ii) whether the routes parallel or utilize existing compatible rights-of-way;

19 (iii) whether the routes parallel property lines or other natural or cultural features;
20 and

21 (iv) whether the routes conform with the policy of prudent avoidance.

22 **1. USE AND PARALLELING OF EXISTING, COMPATIBLE RIGHTS-OF-**
23 **WAY (INCLUDING APPARENT PROPERTY BOUNDARIES)**

1 **Q. Describe how Oncor and AEP propose to use existing compatible rights-of-way**
 2 **for the proposed project.**

3 A. Each proposed alternative route parallels apparent property boundaries and existing
 4 compatible rights-of-way. The percentage of Route 41's length that parallels
 5 existing compatible rights-of-way and apparent property boundaries is
 6 approximately 26.4% of the length. The table below summarizes the length, length
 7 parallel to either a compatible right-of-way or to a property boundary, and the total
 8 percentage of parallel right-of-way used by each proposed alternative route.

<u>Route</u>	<u>Length (Miles)</u>	<u>Length Parallel to ROW (Miles)</u>	<u>Percentage</u>
325	53.7	26.1	48.6%
46	54.8	26.6	48.5%
370	57.8	25.6	44.4%
328	50.3	21.6	42.9%
49	51.5	21.6	41.9%
324	47.2	17.9	37.9%
310	53.3	20.2	37.8%
366	51.5	19.0	37.0%
296	49.9	18.0	36.0%
183	58.6	19.3	32.9%
326	53.3	16.4	30.7%
404	56.3	17.2	30.5%
329	52.8	15.7	29.7%
293	51.1	15.1	29.5%
14	51.1	15.1	29.5%
320	44.5	12.1	27.2%
282	48.8	13.1	26.8%
41	45.7	12.1	26.4%
3	49.9	13.2	26.4%
357	49.6	12.9	26.0%
297	45.5	11.8	25.9%
292	47.1	12.2	25.9%

78	50.8	12.9	25.3%
18	46.7	11.8	25.2%
13	48.3	12.2	25.2%
280	50.6	11.9	23.5%
90	52.8	11.6	21.9%
131	51.2	11.2	21.8%
281	51.7	8.9	17.3%

1

2

I consider using existing easements and rights-of-way as one of the key ways to mitigate concerns in this project.

3

4

<u>Route</u>	<u>Length (Miles)</u>	<u>Length Parallel to Transmission ROW (Miles)</u>	<u>Percentage</u>
13	48.3	0	0%
18	46.7	0	0%
292	47.1	0	0%
297	45.5	0	0%
329	52.8	0	0%
131	51.2	0.8	1.60%
78	50.8	1.5	2.90%
281	51.7	1.5	3.00%
357	49.6	1.5	3.00%
41	45.7	1.9	4.20%
320	44.5	1.9	4.30%
14	51.1	2.5	5.00%
293	51.1	2.5	5.00%
404	56.3	3.4	6.00%
280	50.6	4.1	8.20%
326	53.3	4.5	8.40%
90	52.8	6.9	13.10%
3	49.9	6.9	13.80%
282	48.8	6.9	14.20%
370	57.8	11.3	19.60%
46	54.8	11	20.10%
183	58.6	11.8	20.20%

325	53.7	11	20.50%
296	49.9	10.3	20.60%
310	53.3	11.3	21.20%
49	51.5	11.3	22.00%
328	50.3	11.3	22.50%
324	47.2	12.2	25.90%
366	51.5	13.7	26.60%

1

2 **Q. Could you briefly explain why those routes with better transmission ROW**
3 **parallel were not selected?**

4 A. Yes. All the routes with the exception of Route 320 are longer and cost more. The
5 cost range is from \$125,931,000 to \$154,614,000. Staff's recommended route is
6 \$127,529,000. Route 320, as stated before, has 38 habitable structures.

7 **2. PARALLELING OF NATURAL OR CULTURAL FEATURES**

8 **Q. Describe how Oncor and AEP propose to parallel natural or cultural features**
9 **for the proposed project.**

10 A. The only natural features identified in the EA that will be paralleled are streams.²⁶
11 In general, paralleling of streams can be undesirable from an environmental
12 perspective, thus paralleling of that feature has not been included in my assessment
13 of compatible paralleling.

14 **K. PRUDENT AVOIDANCE**

15 **Q. Define prudent avoidance.**

16 A. Prudent avoidance is defined by 16 TAC § 25.101(a)(6) as follows: "The limiting
17 of exposures to electric and magnetic fields that can be avoided with reasonable
18 investments of money and effort."

²⁶ Application Attachment 1 Appendix E.

1 **Q. How can exposure to electric and magnetic fields be limited when routing**
 2 **transmission lines?**

3 A. Primarily by proposing alternative routes that would minimize, to the extent
 4 reasonable, the number of habitable structures located in close proximity to the
 5 routes. Route 41 is the third shortest route; therefore, it will minimize exposure to
 6 electric and magnetic fields. In addition, this route has only three habitable
 7 structures.

8 **Q. How many habitable structures are located in close proximity to each of the**
 9 **proposed alternative routes?**

10 A. The table below ranks the number of habitable structures that are within 500 feet of
 11 the centerline of each of the proposed alternative routes:

12

<u>Route</u>	<u>Number of Habitable Structures</u>
46	2
49	2
78	2
90	2
183	2
41	3
18	3
3	3
131	3
13	4
14	4
325	37
326	37
328	37
329	37
357	37

366	37
280	38
281	38
282	38
297	38
310	38
320	38
324	38
292	39
293	39
296	39
370	66
404	66

1

2

Route 41 has 3 habitable structures that are within 500 feet of the centerline, which makes it the second lowest number in that criterion.

3

4 **Q. Could you briefly discuss the routes with fewer or equal numbers of habitable**
5 **structures and why Route 41 is still recommended?**

6 A.

Yes. Routes 46, 49, 78, 90, and 183 have fewer habitable structures. Each of these routes has 2. However, each one is significantly longer than Staff's route. These routes range in length from 50.8 miles to 58.6. They are far longer and more expensive than Route 41. Finally, routes 46, 49, and 78 each have one or more FM, microwave or other electronic installation within 2,000 feet of the route centerline.

7

8

9

10

11 **Q. Do you conclude that Oncor and AEP proposed alternative routes that**
12 **minimized, to the extent reasonable, the number of habitable structures located**
13 **in close proximity to the routes?**

14

A. Yes.

15 **VI. CONCLUSION**

1 **Q. In your opinion, is any one of the proposed alternative routes better than all of**
2 **the other routes in all respects?**

3 A. No.

4 **Q. If no proposed alternative route is better than all of the others in all respects,**
5 **why have you recommended Route 41 instead of one of the other routes?**

6 A. In summary, after analyzing all the factors that the Commission must consider under
7 PURA § 37.056 and 16 TAC § 25.101, I conclude that Route 41 best meets the
8 criteria of PURA and the Commission's rules because: (1) Route 41 is the third
9 shortest of all the routes, it is 45.7 miles long. (2) Route 41 parallels property lines,
10 existing transmission line right-of-way, or compatible right-of-way for 26.4% of its
11 entire length. The range of alternative routes paralleling existing compatible
12 corridors is 17.3% to 48.6%. (3) Route 41 costs \$127,529,000.00, which is the
13 second least costly of the 29 proposed routes. This cost also includes the necessary
14 substation work. (4) Route 41 contains 3 habitable structures within 500 feet of its
15 centerline. (5) Route 41 is acceptable from the aspect of community values,
16 recreational and park areas, historical and aesthetic values, and environmental
17 integrity. Overall, I consider Route 41 to have the most advantages and to be
18 superior to the other proposed alternative routes.

19 **Q. In your opinion, if the Commission considered the criteria of PURA and the**
20 **Commission's rules in a way that favored any of the other proposed alternative**
21 **routes over Route 41, do you believe those other proposed alternative routes**
22 **are viable?**

23 A. Yes.

1 **Q.** **Does this conclude your testimony?**

2 **A.** Yes.

Attachment DB-1: Qualifications of David Bautista

In December 1999 I received a Bachelor of Science in Electrical Engineering from Texas A&M University-Kingsville. In June of 2009 I passed my professional engineering exam in power engineering and received my professional engineering license (TX License 103418).

I started my career as an underground distribution engineer for City Public Service in San Antonio. I was responsible for three-phase commercial design of underground distribution circuits. I also served as a project manager for all my designs, which included overhead to underground conversions, system improvements, military bases, and commercial applications.

After two short stops at Austin Energy and Rio Grande Electric Cooperative, I joined Bluebonnet Electric Cooperative (BEC). I started as a System Engineer I and progressed to the System Engineer III level. At BEC, I was responsible for system protection, system planning, power factor correction and other distribution engineering needs.

In addition to my utility experience, I worked as an Engineering Consultant for more than two years. As a consultant, I provided engineering solutions to various utility companies throughout the State of Texas. Such solutions included design of 12.5kV to 34.5kV projects, system protection, distribution planning, construction specifications, development of load trees for steel and concrete pole fabrication, development of sag/tension charts and equipment specifications. I also worked one year as an engineering teacher for Southwest Independent School District in San Antonio. I joined the Public Utility Commission in April 2018 as an Engineering Specialist for the Infrastructure and Reliability Division.

ATTACHMENT DB-2

TPWD Letter to Karen Hubbard



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January 11, 2018

Ms. Karen Hubbard
Public Utility Commission of Texas
P.O. Box 13326
Austin, TX 78711-3326

2019 JAN 15 AM 9:24

PUBLIC UTILITY COMMISSION
FILING CLERK

RE: PUC Docket No. 48785: Joint Application of Oncor Electric Delivery Company, LLC and AEP Texas, Inc. to Amend their Certificates of Convenience and Necessity for the Proposed Sand Lake to Solstice Double-Circuit 345-kilovolt Transmission Line Project in Pecos, Reeves, and Ward Counties, Texas

Dear Ms. Hubbard:

Texas Parks and Wildlife Department (TPWD) has received the Environmental Assessment (EA) and Alternative Routes Analysis regarding the above-referenced proposed transmission line project. TPWD offers the following comments and recommendations concerning this project.

Please be aware that a written response to a TPWD recommendation or informational comment received by a state governmental agency may be required by state law. For further guidance, see the Texas Parks and Wildlife (TPW) Code, Section 12.0011. For tracking purposes, please refer to TPWD project number 40999 in any return correspondence regarding this project.

Project Description

Oncor Electric Delivery Company, LLC (Oncor) and AEP Texas, Inc. (AEP Texas) propose to construct a double-circuit 345-kilovolt (kV) transmission line from the proposed Oncor Sand Lake Switch in Ward County and the existing AEP Texas Solstice Switch in Pecos County. The Sand Lake Switch will be located approximately 6 miles northeast of the City of Pecos on the northwest side of Farm-to-Market Road (FM) 3398. The Solstice Switch is located along the north side of Interstate Highway (IH) 10 approximately 2.5 miles east of the Pecos/Reeves County Line. The proposed transmission line project will be approximately 44.5 to 58.7 miles long, depending on which route is selected by the Public Utility Commission of Texas (PUC). For the proposed project, Oncor anticipates the use of a self-supporting, double-circuit lattice, steel towers. Oncor's and AEP Texas' typical structure heights are anticipated to be 125 and 165 feet respectively, but tower height will vary depending on terrain. The results of site-specific geotechnical and engineering studies will be used to determine the appropriate design and placement of the structures. The proposed right-of-way (ROW) width for this project will be approximately 160 feet. The ROW normally extends an equal distance on both sides of the transmission line centerline.

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AUSTIN, TEXAS 78744-3291
512 389.4800
www.tpwd.texas.gov

To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations.

99

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Additional ROW may be required at line angles, dead ends, or for terrain-related constraints.

Halff Associates, Inc. (Halff) was retained to identify and evaluate alternative routes, and to prepare an EA and Alternative Route Analysis report to support the Oncor and AEP Texas application for a Certificate of Convenience and Necessity (CCN). The EA has been prepared to provide information and address the requirements of Section 37.056(c)(4)(A)-(D) of the Texas Utilities Code, PUC Procedural Rules Section 22.52(a)(4), PUC Substantive Rules Section 25.101, and the PUC CCN application form for a proposed transmission line.

Previous Coordination

TPWD provided information and recommendations regarding the preliminary study area for this project to Halff on August 1, 2018. This response was included in Appendix A of the EA.

Recommendation: Please review previous TPWD correspondence and consider the recommendations provided, as they remain applicable to the project as proposed.

Proposed Alternative Routes

Oncor/AEP Texas' Recommended Route

Halff professionals with expertise in different environmental disciplines (geology/soils, hydrology, terrestrial ecology, wetland ecology, and land use/aesthetics) evaluated the alternative routes based upon environmental conditions present along each route and the general routing criteria developed by Oncor, AEP Texas, and Halff. For the proposed project, Halff evaluated a total of 408 preliminary alternative routes and considered 35 routing criteria addressing factors such as land use, aesthetics, and potential environmental impacts for each of the alternative routes. Oncor and AEP Texas then evaluated the routes and selected 29 alternative routes to be filed with the CCN application. Oncor and AEP Texas selected Route 320 as the route that best meets the requirements of the Texas Utilities Code and the PUC's Substantive Rules.

The Alternative Routes Evaluation Memorandum (Attachment 12 of CCN) included the following information that contributed to Oncor and AEP Texas' selection of Route 320 as the route that best meets the requirements of the Texas Utilities Code and the PUC's Substantive Rules:

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- *the length of Route 320 is approximately 44.5 miles, which is the shortest alternative route (Route 183 is the longest route included in the Application at approximately 58.7 miles);*
- *Route 320 is estimated to cost approximately \$98,220,000, which is the least expensive alternative route and is \$28,683,000 less than the most expensive alternative route (Route 183);*
- *there are no habitable structures within the proposed ROW of Route 320;*
- *there are 38 habitable structures within 500 feet of the centerline of Route 320, of which 34 of these 38 structures are mobile living or office units that are temporarily in place and appear to have no permanent foundations. The 32 mobile living units are of the travel trailer style and are located within 500 feet of Link B2's centerline. The 2 mobile office units are prefabricated mobile units located within 500 feet of Link Z's centerline at the solar facility near the Solstice Switch endpoint. Habitable structure counts within 500 feet of the filed routes centerlines range from 2 to 66;*
- *Route 320 parallels existing compatible corridors, including existing transmission lines, public roads and highways, railroads, and apparent property boundaries, for approximately 27.2 percent of its length (the range of alternative routes paralleling existing compatible corridors is 17.3 percent to 48.7 percent);*
- *Route 320 crosses no parks/recreational areas and does not have any parks/recreational areas within 1,000 feet of its centerline;*
- *Route 320 crosses no recorded cultural resource sites (two crossings of recorded cultural resource sites was the highest count among the filed routes);*
- *Route 320 has one recorded cultural resource site within 1,000 feet of its centerline (six recorded cultural resource sites within 1,000 feet of the centerline was the highest count among the filed routes);*
- *Route 320 has no Federal Aviation Administration (FAA)-registered airport with a runway greater than 3,200 feet within 20,000 feet of the centerline (two FAA-registered airports with a runway greater than 3,200 feet within 20,000 feet of the centerline was the highest count among the filed routes);*
- *Route 320 has no FAA-registered airport with a runway of 3,200 feet or less within 10,000 feet of the centerline;*
- *Route 320 has no commercial AM radio transmitters within 10,000 feet of its centerline;*
- *Route 320 has no FM radio transmitters, microwave relay stations, or other similar electronic installations within 2,000 feet of its centerline (four such electronic installations within 2,000 feet of centerline was the highest count among the filed routes);*

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- *Route 320 crosses three US or State Highways along its entire length (US or State Highway crossings range from 2 to 3 among the filed routes);*
- *Route 320 crosses thirteen FM roads, county roads or other streets along its entire length (such road or street crossings range from 8 to 19 among the filed routes);*
- *Route 320 has been judged to be feasible from an engineering perspective based on currently known conditions without the benefit of on-the-ground and subsurface surveys, and there are no currently-identifiable engineering constraints that impact this route that cannot be addressed with additional consideration by Oncor and AEP Texas during the engineering and construction process.*

TPWD's Recommended Route

To evaluate the potential impacts to fish and wildlife resources, 17 criteria from Table 7-2 in the EA were used. The criterion TPWD used to evaluate potential impacts to fish and wildlife resources include:

- Length of alternative route;
- Length of route parallel to existing electric transmission lines;
- Length of route parallel to railroads;
- Length of route parallel to existing public roads/highways;
- Length of route across parks/recreational areas;
- Number of parks or recreational areas within 1,000 feet of route centerline;
- Length of route through commercial/industrial areas;
- Length of the route across cropland/hay meadow;
- Length across rangeland pasture;
- Length of route across upland woodlands;
- Length of route across riparian areas;
- Length of route across potential wetlands;
- Number of stream crossings by the route;
- Length of route parallel to streams (within 100 feet);
- Length across lakes or ponds (open waters);
- Number of known rare/unique plant locations within the ROW;
- Length of route through known habitat of endangered or threatened species (as defined in the EA).

TPWD typically recommends that transmission line routes be located adjacent to previously disturbed areas such as existing utility or transportation ROWs and discourages fragmenting habitat or locating in areas that could directly negatively impact wildlife, including listed species. After careful evaluation of the 29 routes

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filed with the CCN application, TPWD selected Route 324 as the route having the least-potential to impact fish and wildlife resources. The decision to recommend Route 324 was based primarily on the following factors:

- Route 324 is the 6th shortest route at 47.2 miles in length, with the shortest route being 44.5 miles in length;
- Route 324 parallels 15.1 miles of existing transmission lines and 2.9 miles of existing public roads/highways (32 percent of its total length);
- Route 324 does not cross any parks and there are no additional parks or recreational areas within 1,000 feet of the ROW centerline;
- Route 324 does not cross any upland woodlands (as defined in the EA);
- Route 324 only crosses 2,067 feet of potential wetlands (with the shortest length through potential wetlands being 1,284 feet);
- Route 324 has the 3rd fewest amount of stream crossings at 15 stream crossings (with the fewest stream crossings being 13);
- Only 799 feet of Route 324 parallels (within 100 feet) streams or rivers;
- Route 324 only crosses 80 feet of open water (lakes, ponds);
- Only one known rare/unique plant location is within the ROW of Route 324 (as defined in the EA);
- Only 63 feet of Route 324 crosses known habitat of endangered or threatened species (as defined in the EA).

TPWD notes that Route 324 would cross one Texas Natural Diversity Database (TXNDD) record from July 1943 for Grayleaf rock-daisy (*Perityle cinerea*), which is a rare plant tracked by TPWD.

The EA did not provide sufficient information based on surveys (aerial or field), remote sensing, modeling, or other available analysis techniques to determine which route would best minimize impacts to important, rare, and protected species. Therefore, the routing recommendation below is based solely on the natural resources information provided in the CCN application and the EA, as well as publicly available information examined in Geographic Information Systems (GIS).

Recommendation: Of the routes evaluated in the EA, Alternative Route 324 appears to best minimize adverse impacts to natural resources while also maintaining a shorter route length and paralleling existing corridors for a portion of the route length. TPWD recommends the PUC select a route that would minimize adverse impacts to natural resources, such as Alternative Route 324.

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Construction Recommendations

General Construction Recommendations

Recommendation: TPWD recommends the judicious use and placement of sediment control fence to exclude wildlife from the construction area. In many cases, sediment control fence placement for the purposes of controlling erosion and protecting water quality can be modified minimally to also provide the benefit of excluding wildlife access to construction areas. The exclusion fence should be buried at least six inches and be at least 24 inches high. The exclusion fence should be maintained for the life of the project and only removed after the construction is completed and the disturbed site has been revegetated. Construction personnel should be encouraged to examine the inside of the exclusion area daily to determine if any wildlife species have been trapped inside the area of impact and provide safe egress opportunities prior to initiation of construction activities. TPWD recommends that any open trenches or excavation areas be covered overnight and/or inspected every morning to ensure no wildlife species have been trapped. For open trenches and excavated pits, install escape ramps at an angle of less than 45 degrees (1:1) in areas left uncovered. Also, inspect excavation areas for trapped wildlife prior to refilling.

Recommendation: For soil stabilization and/or revegetation of disturbed areas within the proposed project area, TPWD recommends erosion and seed/mulch stabilization materials that avoid entanglement hazards to snakes and other wildlife species. Because the mesh found in many erosion control blankets or mats pose an entanglement hazard to wildlife, TPWD recommends the use of no-till drilling, hydromulching and/or hydroseeding due to a reduced risk to wildlife. If erosion control blankets or mats will be used, the product should contain no netting or contain loosely woven, natural fiber netting in which the mesh design allows the threads to move, therefore allowing expansion of the mesh openings. Plastic mesh matting should be avoided.

Federal Law: Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits direct and affirmative purposeful actions that reduce migratory birds, their eggs, or their nests, by killing or capturing, to human control, except when specifically authorized by the Department of the Interior. This protection applies to most native bird species, including ground nesting species. The U.S. Fish and Wildlife Service (USFWS) Migratory Bird Office can be contacted at (505) 248-7882 for more information on potential impacts to migratory birds.

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Section 7.4.2.1 (pages 7-9 and 7-10) of the EA states, "Transmission lines (both structures and wires) could present a hazard to flying birds, particularly migrants, and especially near crossings of water features. Collisions tend to increase in frequency during the fall when migrating flocks are denser and flight altitudes are lower in association with cold air masses, fog, or inclement weather. Studies indicate that higher rates of mortality exist during periods when poor light and weather conditions persist. This is important to note, given that most migratory species will continue to migrate regardless of weather conditions. Overall wire strikes are greatly reduced during bright daylight hours. Species at higher risk for wire strikes are those that fly in fast-moving and/or tight flocks and larger-bodied birds with more awkward flight characteristics. For resident birds or for birds during periods of non-migration, those most prone to collision are often the most common raptors in a given area because of a greater number of repeated flights across power lines particularly when in pursuit of prey. Nevertheless, resident birds and those in an area for an extended period may learn the location of power lines and become less susceptible to wire strikes."

Recommendation: To prevent electrocution of perching birds, TPWD recommends utilizing avian-safe designs that provide appropriate separation between two energized phases or between an energized phase and grounded equipment. TPWD recommends covering energized components with appropriate bird protection materials where adequate spacing cannot be achieved, such as installing insulated jumper wires, insulator covers, bushing caps, and arrester caps. TPWD recommends that lines that cross or are located near rivers, creeks, drainages, wetlands, and lakes have line markers installed at the crossings or closest points to the drainages to reduce potential collisions by birds flying in the vicinity of water features. For additional information, please see the guidelines published in the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*.

Section 7.4.2.1 (page 7-8) of the EA states, "If ROW clearing and construction occurs during the breeding season, impacts may occur to the young of many species including nestling and fledgling birds. Impacts to nesting birds will require mitigating measures to ensure compliance with the Migratory Bird Treaty Act."

Recommendation: If migratory bird species are found nesting on or adjacent to the project area, they must be dealt with in a manner consistent with the MBTA. TPWD recommends excluding vegetation clearing activities during the general bird nesting season, March 15 through September 15, to avoid adverse impacts to breeding birds. If clearing vegetation during the migratory bird nesting season is unavoidable, TPWD recommends surveying the area proposed for disturbance, as close to the date of construction as possible, to

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ensure that no nests with eggs or young will be disturbed by operations. TPWD recommends that a 150-foot buffer of vegetation remain around any nests that are observed prior to disturbance. Any vegetation (such as trees, shrubs, and grasses) or other open areas where occupied nests are located should not be disturbed until the eggs have hatched and the young have fledged.

Federal Law: Endangered Species Act

Federally-listed animal species and their habitats are protected from "take" on any property by the Endangered Species Act (ESA). Take of a federally-listed species can be allowed if it is "incidental" to an otherwise lawful activity and must be permitted in accordance with Section 7 or 10 of the ESA. Federally-listed plants are not protected from take except on lands under federal/state jurisdiction or for which a federal/state nexus (i.e., permits or funding) exists. Any take of a federally-listed species or its habitat without the required take permit (or allowance) from the USFWS is a violation of the ESA.

*Pecos sunflower (*Helianthus paradoxus*)*

Section 7.4.1.4 (page 7-7) of the EA states, "The range of one federally-listed threatened plant species, the Pecos sunflower, is known to include Reeves County, including the study area, and habitat for the species may be found in limited capacity in isolated wetland areas within the study area. The TPWD NDD search found one record of occurrence for this species within the study area through which Link D1 crosses. This area is of limited locational certainty, associated with a record of observation from 1970 which noted the species was infrequently dispersed in the immediate area. The preliminary alternative routes minimize crossings of the potential wetlands in the area, few of which may be spring fed, if any, and it is not anticipated that the proposed project would affect this species."

TPWD's recommended route (Route 324) does not include Link D1, which would cross a TXNDD record for the Pecos sunflower, as stated above.

Recommendation: TPWD recommends the PUC-selected route be surveyed for the Pecos sunflower where suitable habitat may be present, prior to construction. The survey should be performed by a qualified biologist at the time of year when the species is most likely to be found, usually during the species flowering period. If this species is present, plans should be made to avoid adverse impacts to the greatest extent possible. If plants are found in the path of construction, including the placement of staging areas and other project related sites, this office should be contacted for further coordination and possible salvage of plants and/or seeds for seed banking. Plants not in the

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direct path of construction should be protected by markers or fencing and by instructing construction crews to avoid any harm. The USFWS should be contacted for species occurrence data, guidance, permitting, survey protocols, and mitigation for this federally-listed plant.

State Law: Parks and Wildlife Code – Chapter 64, Birds

TPW Code Section 64.002, regarding protection of nongame birds, provides that no person may catch, kill, injure, pursue, or possess a bird that is not a game bird. TPW Code Section 64.003, regarding destroying nests or eggs, provides that, no person may destroy or take the nests, eggs, or young and any wild game bird, wild bird, or wild fowl. TPW Code Chapter 64 does not allow for incidental take and therefore is more restrictive than the MBTA.

Recommendation: Please review the *Federal Law: Migratory Bird Treaty Act* section above for recommendations as they are also applicable for Chapter 64 of the Parks and Wildlife Code compliance.

State Law: Parks and Wildlife Code – Section 68.015

Section 68.015 of the TPW Code regulates state-listed species. Please note that there is no provision for the capture, trap, take, or kill (incidental or otherwise) of state-listed species. *TPWD Guidelines for Protection of State-Listed Species* includes a list of penalties for take of species. State-listed species may only be handled by persons with authorization obtained through TPWD. For more information on this permit, please contact the Wildlife Permits Office at (512) 389-4647.

Texas horned lizard (Phrynosoma cornutum)

As stated in Section 3.5.2.4 (page 3-62) of the EA, “The historical range of the Texas horned lizard included the entire state of Texas in arid and semiarid areas of flat, open terrain with scattered vegetation and sandy or loamy soils. Population declines have been linked to loss of habitat, insecticides, over-collection, and the accidental introduction of the imported fire ant (*Solenopsis invicta*). Despite declines in east and central Texas, the Texas horned lizard is still common in portions of the Rio Grande Plains of south Texas, the Rolling and High Plains of northwest Texas, and the Trans Pecos of far west Texas. It remains possible that the Texas horned lizard could occur in the study area wherever suitable habitat exists.”

Section 7.4.2.4 (page 7-13) of the EA states, “The Texas horned lizard has more limited mobility and could be harmed by the heavy machinery, should they occur

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within the ROW of the proposed project. TPWD provides specific recommendations for the state-listed Texas horned lizard, recommending pre-construction surveys for suitable habitat and relocation where individuals are found. Exclusion recommendations to prevent individuals from re-entering the disturbance area are also provided. If suitable habitat cannot be avoided, TPWD further recommends that a permitted biological monitor be present during construction to relocate Texas horned lizards, if found, and to minimize disturbance of harvester ant mounds (the species primary food source) during construction.”

Recommendation: TPWD recommends having a permitted biologist survey the PUC-selected route for any Texas horned lizards that may be in the area that is proposed for disturbance. As previously mentioned, a useful indication that the Texas horned lizard may occupy the site is the presence of harvester ant nests. The survey should be performed during the warm months of the year when the Texas horned lizards are active. If Texas horned lizards are found on-site, TPWD recommends relocating individuals off-site to a nearby area and that contains similar habitat. For projects where the disturbance is linear (county and state roads and highways, pipelines, and transmission lines) and after Texas horned lizard removal, TPWD recommends that fencing be installed to exclude Texas horned lizards and other reptiles from entering the active construction area and project specific locations or staging areas.

The exclusion fence should be constructed and maintained as follows:

- a. The exclusion fence should be constructed with metal flashing or drift fence material.
- b. Rolled erosion control mesh material should not be used.
- c. The exclusion fence should be buried at least 6 inches deep and be at least 24 inches high.
- d. The exclusion fence should be maintained for the life of the project and only removed after the construction is completed and the disturbed site has been revegetated.
- e. Any open trenches or excavation areas should be covered overnight and/or inspected every morning to ensure no Texas horned lizards or other wildlife have been trapped. For open trenches and excavated pits, install escape ramps at an angle of less than 45 degrees (1:1) in areas left uncovered. Also, inspect excavation areas for trapped wildlife prior to refilling.

Recommendation: If the PUC-selected route cannot avoid suitable habitat of the Texas horned lizard, then TPWD recommends a permitted biological monitor be present during clearing and construction activities to relocate

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Texas horned lizards encountered during construction. TPWD also recommends providing contractor training where feasible. Because the biological monitor cannot oversee all construction activity at the same time, it's important for the contractor to be able to identify protected species and to be on the lookout for them during construction. TPWD also recommends avoiding impacts to harvester ant mounds where feasible. TPWD understands that ant mounds in the direct path of construction would be difficult to avoid, but contractors should be mindful of these areas when deciding where to place project specific locations and other disturbances associated with construction.

If the presence of a biological monitor during construction is not feasible, state-listed threatened species observed during construction should be allowed to safely leave the site or be relocated by a permitted individual to a nearby area with similar habitat that would not be disturbed during construction. TPWD recommends that any translocations of reptiles be the minimum distance possible no greater than one mile, preferably within 100 to 200 yards from the initial encounter location. A mixture of cover, food sources, and open ground is important to the Texas horned lizard and the harvester ant. Disturbed areas within suitable habitat for the Texas horned lizard should be re-vegetated with site-specific native, patchy vegetation rather than sod-forming grasses.

Pecos pupfish (Cyprinodon pecosensis)

Section 3.5.2.4 (page 3-60) of the EA states, "The Pecos pupfish originally occurred within the entire Pecos River basin. Presently this fish is restricted to the upper basin only. The Pecos pupfish inhabits shallow margins of clear, vegetated spring waters high in calcium carbonate, as well as in sinkhole habitats. Other habitat includes saline springs, gypsum sinkholes, and desert streams. Sometimes this species occurs in low salinity waters, but it is most typical and abundant in highly saline habitats that support relatively few species. This species is documented in NDD records in the Pecos River within the study area, north, and east of the study area. The range of observations extends from 1972 to 1980. Habitat for this observation consists of gravel and bedrock substrate and the presence of spring-fed tributaries. There is potential for the Pecos pupfish to be found within the study area wherever suitable habitat exists."

Proserpine shiner (Cyprinella proserpina)

Section 3.5.2.4 (page 3-60) of the EA states, "The Proserpine shiner inhabits the Rio Grande and Pecos River basins in rocky runs and pools of creeks and small rivers. The NDD database includes records of the Proserpine shiner in the Pecos River in the far eastern reach of Pecos County. With the presence of the Pecos

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River and other creeks, the Proserpine shiner may be found wherever suitable habitat exists.”

TPWD notes that all of the proposed routes contain one crossing of the Pecos River. Section 7.3.1 (page 7-3) of the EA states, “Any stream that would be crossed by the proposed project would be spanned by the proposed project, and no supporting structures would be placed in any streambed.”

Recommendation: TPWD recommends taking measures to avoid impacts to aquatic and riparian habitats, which would help minimize impacts to the Pecos pupfish and Proserpine shiner (as well as other aquatic species inhabiting the Pecos River). All waterways in the project area should be spanned, and care should be taken to avoid multiple crossings of creeks and rivers or installing lines parallel to waterways and therefore removing large sections of riparian habitat. River and creek crossings should be located in previously disturbed areas to avoid further fragmentation of the riparian corridors associated with these waterways. TPWD also recommends implementing best management practices (BMPs) to prevent erosion and sedimentation into waterways. Erosion and sediment control measures include temporary or permanent seeding (with native plants), mulching, earth dikes, silt fences, sediment traps, and sediment basins. Examples of post-construction BMPs include vegetation systems (biofilters) such as grass filter strips and vegetated swales as well as retention basins capable of treating any additional runoff. Please also refer to the *General Construction Recommendations* section of this letter for erosion and seed/mulch stabilization materials TPWD recommends utilizing and avoiding.

Trans-Pecos black-headed snake (*Tantilla cucullata*)

Section 3.5.2.4 (pages 3-62 and 3-63) of the EA states, “The Trans-Pecos black-headed snake is a small snake with uniform body color and a small, dark head. This secretive species is fossorial and mostly nocturnal. It inhabits predominantly mesquite-creosotebush and pinyon-juniper-oak habitats. The Trans-Pecos black-headed snake lays its eggs from June to August. It eats insects, spiders, and other small invertebrates. The NDD database includes a record for the Trans-Pecos black-headed snake in central Pecos County. There is potential that the Trans-Pecos black-headed snake may be present within the study area wherever suitable habitat exists.”

Recommendation: Snakes are generally perceived as a threat and killed when encountered during clearing or construction. Therefore, TPWD recommends that personnel involved in clearing and construction be informed of the potential for the Trans-Pecos black-headed snake to occur in the project area.

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Personnel should be advised to avoid impacts to this snake as it is non-venomous and poses no threat to humans. TPWD recommends a permitted biological monitor be present during construction to try to relocate protected species if found (to an area that is nearby with similar habitat). TPWD recommends that any translocations of reptiles be the minimum distance possible no greater than one mile, preferably within 100 to 200 yards from the initial encounter location. If the presence of a permitted biological monitor during construction is not feasible, state-listed species observed during construction should be allowed to safely leave the site.

Rare Species

In addition to state- and federally-protected species, TPWD tracks special features, natural communities, and rare species that are not listed as threatened or endangered. These species and communities are tracked in the TXNDD, and TPWD actively promotes their conservation. TPWD considers it important to evaluate and, if necessary, minimize impacts to rare species and their habitat to reduce the likelihood of endangerment and preclude the need to list as threatened or endangered in the future.

Table 3-3 of the EA lists the following rare plant species as “likely to occur within the study area”:

- Alkali spurge (*Chamaesyce astyla*)
- Bigelow's desert grass (*Blepharidachne bigelovii*)
- Broadpod twistflower (*Streptanthus platycarpus*)
- Bushy wild-buckwheat (*Eriogonum suffruticosum*)
- Cienega false clappia-bush (*Pseudoclappia arenaria*)
- Cory's ephedra (*Ephedra coryi*)
- Desert night-blooming cereus (*Peniocereus greggii* var. *greggii*)
- Dune umbrella-sedge (*Cyperus onerosus*)
- Dwarf broomspurge (*Euphorbia jejuna*)
- Grayleaf rock-daisy (*Perityle cinerea*)
- Gyp locoweed (*Astragalus gypsodes*)
- Havard's trumpets (*Acleisanthes acutifolia*)
- Hawksworth's mistletoe (*Phoradendron hawksworthii*)
- Hinckley's spreadwing (*Eurytaenia hinckleyi*)
- Irion County wild-buckwheat (*Eriogonum nealleyi*)
- Leoncita false foxglove (*Agalinis calycina*)
- Longstalk heimia (*Nesaea longipes*)
- Rayless rock-daisy (*Perityle angustifolia*)

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- Warnock's water-willow (*Justicia warnockii*)
- White column cactus (*Escobaria albicolumnaria*)
- Wright's trumpets (*Acleisanthes wrightii*)

Recommendation: TPWD recommends surveying the PUC-selected route for the above-listed species where suitable habitat may be present, prior to construction. The survey should be performed by a qualified biologist at the time of year when the species is most likely to be found, usually during their respective flowering period. If any of these species are present, plans should be made to avoid adverse impacts to the greatest extent possible. If plants are found in the path of construction, including the placement of staging areas and other project related sites, this office should be contacted for further coordination and possible salvage of plants and/or seeds for seed banking. Plants not in the direct path of construction should be protected by markers or fencing and by instructing construction crews to avoid any harm or disturbance.

Black-tailed prairie dog (*Cynomys ludovicianus*)

Section 3.5.2.4 (pages 3-66 and 3-67) of the EA states, "The black-tailed prairie dog inhabits dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle. These mammals live in large family groups. This species is documented in NDD records in scattered locations within the south-central region of the study area. The NDD record includes several communities southeast of the study area, and the grasslands within the study area could provide habitat for the black-tailed prairie dog."

Recommendation: TPWD recommends surveying the PUC-selected route for prairie dog towns or burrows and species that depend on them. If prairie dog towns or burrows are found in the area proposed for disturbance, TPWD recommends avoiding these areas during construction and installing exclusion fence to keep prairie dogs from entering the project area. If prairie dog burrows will be disturbed as a result of the proposed project, TPWD recommends non-harmful exclusion methods be used to encourage the animals to vacate the area prior to disturbance and discourage them from returning to the area during construction. If prairie dogs are encountered on the project site, TPWD recommends contacting a prairie dog relocation specialist. If impacting a portion of a larger colony, time relocation efforts and/or humane removal immediately before construction to discourage recolonization of the project area. Prairie dogs can be encouraged to move away from a project area by mowing overgrown adjacent areas. Conversely, prairie dogs can be discouraged from utilizing areas by not mowing and

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allowing grass or other tall vegetation to grow or by scraping all vegetation off the project site and leaving soil exposed.

Western burrowing owl (*Athene cunicularia hypugaea*)

Section 3.5.2.4 (pages 3-64 and 3-65) of the EA states, "The western burrowing owl occurs in the western half of North America. Nesting takes place in warmer temperate and sub-tropical regions from southern California to west Texas and south into Mexico. Typical habitat consists of open grasslands, especially prairie, plains, and savanna. Sometimes the burrowing owl is found in open areas such as vacant lots near human habitation or airports. Preferred habitat is typified by shorter vegetation accompanied by abandoned small mammal burrows, which the owl modifies for its own use. This species rarely creates its own burrows, and is thus associated with known habitat for prairie dog, ground squirrel, fox, and similar ground-dwelling mammals. Species decline is primarily due to habitat loss and fragmentation. Due to the presence of prairie and plains, the western burrowing owl could occur within the study area."

Recommendation: As previously mentioned, TPWD recommends surveying the PUC-selected route for prairie dog or other mammal burrows prior to construction. If mammal burrows or other suitable habitat would be disturbed as a result of the proposed project, TPWD recommends they be surveyed for burrowing owls. If nesting owls are found, disturbance should be avoided until the eggs have hatched and the young have fledged.

Table 3-14 of the EA lists the following rare bat species as "likely to occur within the study area":

- Cave myotis bat (*Myotis velifer*)
- Big free-tailed bat (*Nyctinomops macrotis*)
- Pocketed free-tailed bat (*Nyctinomops femorosaccus*)
- Pale Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)

Adverse impacts, such as habitat loss, to bats are being compounded due to a deadly disease known as white-nose syndrome (WNS). This disease is associated with the fungus, *Pseudogymnoascus destructans*, which appears to impact certain species of hibernating bats and frequently results in death of the infected bats. This fungus has wiped out entire colonies of hibernating bats in states east of Texas. As of April 2018, the fungus that causes WNS has been detected in ten Texas Counties. Bats appear to spread WNS among colonies and roosts; however there is evidence that humans can transport the fungus on their shoes, gear, and clothing after entering infected bat caves and roosts. TPWD is concerned that

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WNS could be spread by personnel or consultants working on development projects in states where WNS has been detected, and then inadvertently bring the fungus to Texas on gear or clothing that has not been properly decontaminated.

To determine the appropriate BMP to avoid or minimize impacts to bats, review the habitat descriptions for the above-listed species on the TPWD Rare, Threatened, and Endangered Species of Texas by County List or other trusted resources. All bat surveys and other activities that include direct contact with bats shall comply with TPWD-recommended white-nose syndrome protocols located on the TPWD Wildlife Habitat Assessment Program website under "Project Design and Construction."

The following survey and exclusion protocols should be followed prior to commencement of construction activities. For the purposes of this letter, structures are defined as bridges, culverts (concrete or metal), wells, and buildings. For activities that have the potential to impact structures, cliffs or caves, or trees; a qualified biologist should perform a habitat assessment and occupancy survey of the feature(s) with roost potential as early in the planning process as possible or within one year before construction is scheduled to begin.

Recommendation: TPWD recommends surveying the PUC-selected route for potential bat habitat. Surveys should be conducted by a qualified biologist to determine roost site potential and occupancy. Bat surveys of structures/features should include visual inspections for the presence of bats. If bats are present or recent signs of occupation (i.e., piles of guano, distinct musky odor, or staining and rub marks at potential entry points) are observed, take appropriate measures to ensure that bats are not harmed, such as implementing non-lethal exclusion activities or timing or phasing of construction. For roosts where occupancy is strongly suspected but unconfirmed during the initial survey, revisit feature(s) at most four weeks prior to scheduled disturbance to confirm absence of bats.

Recommendation: For exclusion of bats, TPWD recommends locating and sealing the entrances through which bats make ingress/egress. Before excluding bats from any occupied structure/feature, bat species, weather, temperature, season, and geographic location must be incorporated into any exclusion plans to avoid unnecessary harm or death to bats. Winter exclusion must entail a survey to confirm either, 1) bats are absent or 2) present but active (i.e. continuously active – not intermittently active due to arousals from hibernation). Prior to exclusion, ensure that alternate roosting habitat is available in the immediate area. If no suitable roosting habitat is available, install alternate roosts to mitigate for the loss of an occupied roost. If alternate

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roost sites are not provided, bats may seek shelter in other inappropriate sites, such as buildings, in the surrounding area.

Exclusion devices can be installed by a qualified individual between September 1 and March 31. Exclusion devices should be used for a minimum of seven days when minimum nighttime temperatures are above 50°F and minimum daytime temperatures are above 70°F. TPWD offers the following best-practices regarding bat exclusion devices and activities:

- Avoid using materials that degrade quickly, like paper, steel wool or rags, to close holes.
- Avoid using products or making structural modifications that may block natural ventilation, like hanging plastic sheeting over an active roost entrance, thereby altering roost microclimate.
- Avoid using chemical and ultrasonic repellents
- Avoid use of silicone, polyurethane or similar non-water-based caulk products.
- Avoid use of expandable foam products at occupied sites
- Avoid the use of flexible netting attached with duct tape.
- In order to avoid entombing bats, exclusion activities should be only implemented by a qualified individual. A qualified individual or company should possess at least the following minimum qualifications:
 - Experience in bat exclusion (the individual, not just the company).
 - Proof of rabies pre-exposure vaccinations.
 - Demonstrated knowledge of the relevant bat species, including maternity season date range and habitat requirements.
 - Demonstrated knowledge of rabies and histoplasmosis in relation to bat roosts.
- Contact TPWD for additional resources and information to assist in executing successful bat exclusions that will avoid unnecessary harm or death in bats.

Spot-tailed earless lizard (*Holbrookia lacerata*)

Section 3.5.2.4 (pages 3-68 and 3-69) of the EA states “The spot-tailed earless lizard is found in central and southern Texas and adjacent Mexico. This lizard inhabits moderately open brushland. It prefers relatively flat areas free of vegetation or other obstructions, including disturbed areas. Given the predominance of brushland in the study area, it is possible for the spot-tailed

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earless lizard to occur within the study area. This species is documented in NDD records in Ward County near the City of Pyote, 3 miles east of the study area. A specimen was collected in 1967 but a 2009 survey at the location did not identify any individuals. There is potential for the spot-tailed earless lizard to be found wherever suitable habitat exists."

Recommendation: TPWD recommends monitoring the listing status of the spot-tailed earless lizard throughout project planning and construction and perform required consultation, permitting, and mitigation with the USFWS if this species becomes listed under the ESA. TPWD recommends a biological monitor be present during construction to relocate spot-tailed earless lizards, if found. If the presence of a biological monitor during construction is not feasible, species observed during construction should be allowed to safely leave the site or be relocated to a nearby area with similar habitat that would not be disturbed during construction. As previously mentioned, TPWD recommends that any translocations of reptiles be the minimum distance possible no greater than one mile, preferably within 100 to 200 yards from the initial encounter location.

Texas Natural Diversity Database

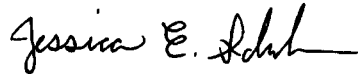
The TXNDD is intended to assist users in avoiding harm to rare species or significant ecological features. Given the small proportion of public versus private land in Texas, the TXNDD does not include a representative inventory of rare resources in the state. Absence of information in the database does not imply that a species is absent from that area. Although it is based on the best data available to TPWD regarding rare species, the data from the TXNDD do not provide a definitive statement as to the presence, absence or condition of special species, natural communities, or other significant features within your project area. These data are not inclusive and **cannot be used as presence/absence data**. They represent species that could potentially be in your project area. This information cannot be substituted for field surveys. The TXNDD is updated continuously based on new, updated and undigitized records; therefore, TPWD recommends requesting the most recent TXNDD data on a regular basis. For questions regarding a record or to request the most recent data, please contact TexasNatural.DiversityDatabase@tpwd.texas.gov.

Recommendation: To aid in the scientific knowledge of a species' status and current range, TPWD encourages reporting all encounters of rare, state-listed, and federally-listed species to the TXNDD according to the data submittal instructions found on the TXNDD website.

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I appreciate the opportunity to review and comment on this EA. Please contact me at (512) 389-8054 or Jessica.Schmerler@tpwd.texas.gov if you have any questions.

Sincerely,



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